

Early and favorable examination is requested.

Respectfully submitted,

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HEAT TOLERANT BROCCOLI

CROSS REFERENCE TO RELATED APPLICATIONS

This application is a U.S. national phase application of International PCT/US99/31230, filed December 29, 1999, which claims priority to U.S. Application Serial No. 09/328,121 filed June 8, 1999, which claims priority to U.S. Provisional Application Serial No. 60/114,038, filed December 29, 1998, all of which are hereby incorporated by reference in their entirety.

FIELD OF THE INVENTION

This invention is in the field of plant breeding. In particular, this invention relates to the development of heat tolerant broccoli (*Brassica oleracea* L. var. *italica*).

BACKGROUND OF THE INVENTION

Broccoli (*Brassica oleracea* L. var. *italica*) has become an increasingly popular crop worldwide especially in health-conscious areas of the western world such as the North America, Europe, and Japan. An average broccoli stalk contains only 30 calories and provides 240% of the recommended daily allowance of vitamin C plus 10% of the recommended daily allowance of vitamin A. In addition to its nutritional value, some recent studies have shown that broccoli aids in the prevention of some forms of cancer.

Broccoli is a cool weather crop. High temperatures (>80°F) for even relatively short periods of time and warm temperatures (>75°F) for extended periods of time cause broccoli heads to be rough with uneven flower bud sizes and thus commercially unacceptable. {(Björkman, T., et al. (1998) High temperature arrest of inflorescence development in broccoli (*Brassica oleracea* var. *italica* L.) Journal of Experimental Botany 49:101-106.} As a result of the high sensitivity to heat during growth, broccoli can only be grown in limited areas under cool weather conditions.